



Disease and Nutritional Barriers to Health

Clearly, ill health reduces manpower and retards economic progress. In these excerpts some of the specific disease problems of our southern neighbors are outlined, and some of the main lines of attack by the Servicios are traced. The "nutritional spectrum," heavily weighted on the side of malnourishment, is described, together with the efforts toward improvement.

EXAMINATION of mortality and morbidity data leads to the conclusion that malaria and tuberculosis were the outstanding disease problems in Latin America during the decade 1942-52. Such diseases as yaws, hookworm disease, Hansen's disease, schistosomiasis, and epidemic typhus, however, also constituted problems, and in some areas one or another of these rivaled malaria and tuberculosis for a top-ranking position.

In Haiti, for example, it is believed that yaws has attacked one-third of the population of 3,000,000 and that at any one time there are at least 50,000 active cases.

Hookworm disease was, and still is, a major problem in tropical and subtropical areas where climatic and soil conditions are favorable and where the disposal of human feces is improperly provided for. This disease represents a heavy burden on the productive capacity of the population.

There are more than 37,000 known cases of Hansen's disease in Brazil, 8,000 in Colombia, and about 8,000 in Mexico. Other countries have a few hundred to a few thousand cases each. Since there are no certain means of preventing or of curing this disease, it is still necessary to provide custodial care for thousands of infected individuals.

Schistosomiasis is limited to a few areas of Latin America, but the necessary intermediate host, a snail of the genus *Planorbis*, is widely

distributed in several of the countries. This disease represents a serious threat since as yet no wholly practical and effective means of control has been devised.

Epidemic typhus and murine, or endemic, typhus are prevalent in the Andean region particularly and may be found in other parts of Latin America. Fortunately, the means to control epidemics, and perhaps to prevent them as well, are available.

Other diseases found in Latin America include Chagas' disease, plague, bartonellosis, brucellosis, and onchocerciasis, as well as the more commonly known diseases, such as typhoid fever, the dysenteries, smallpox, diphtheria, measles, and whooping cough.

Though knowledge is far from complete in respect to the importance of specific diseases in infant mortality, it is generally accepted that a major portion of the infant deaths result from intestinal infections. The *Shigella* and *Salmonella* groups of bacteria and probably certain viruses which are as yet not clearly determined are the causal agents. Malnutrition, either alone or in conjunction with an infectious agent, is also assigned a significant role in infant deaths.

Chiefs of Field Party Analysis

A series of reports drafted by the chiefs of the United States field parties offered an op-

portunity to compare the conclusions reached by a study of official records with the impressions and opinions of competent resident observers.

In 1949, the chiefs of field party had been requested to furnish a list of the 10 diseases which were considered the most serious public health problems in the countries in which they were resident. Since the instructions did not specify the characteristics of a disease which permit it to be designated a public health problem nor provide criteria whereby importance might be measured, it was to be expected that the replies would lack uniformity and would include a wide range of disease entities.

A total of 35 different diseases were enumerated as major public health problems in the 13 lists returned. Of these only one disease, tuberculosis, appeared in all the lists. Syphilis and typhoid fever were each included in 12 lists, malaria in 11, and whooping cough in 10. No other disease approached such unanimity except measles, which was included in 8 lists.

Such intestinal diseases as diarrhea, enteritis, the dysenteries, typhoid fever, and paratyphoid fever considered as a group, as is justifiable on epidemiological grounds, were listed 25 times. Acute infectious diseases—whooping cough, measles, diphtheria, chickenpox, meningitis, and smallpox—were listed 31 times.

First priority was accorded tuberculosis on 7 lists and malaria on 3; the remaining 3 lists gave priority to whooping cough, yaws, and “diarrhea and enteritis under 2 years of age,” respectively.

The interesting feature of this analysis is not the diverse responses, but the agreement among the chiefs of party as to the diseases which deserve to rank as the first five. These were tuberculosis, syphilis, the enteric infections, malaria, and whooping cough, the very same infectious diseases commonly found to rank high in the morbidity and mortality records of Latin America. With the exception of tuberculosis, these diseases respond favorably to prophylactic and therapeutic measures commonly available, and none of them needs to remain a potent enemy to man. The various Latin American national health services have it within their power to reduce the prevalence of any or all of them to relatively small proportions.

Nutrition

Nutrition plays a determining role in the health of every individual, irrespective of race, age, sex, occupation, or place of residence. The well-nourished and the malnourished, including both the overnourished and the undernourished, form a complete nutritional spectrum of every population group. Studies made in Latin America indicate that the nutritional spectrum is heavily weighted on the side of malnourishment in large groups of the population, but until additional, extended studies have been made, no reliable estimate of its distribution is possible. From casual observation, it is assumed, however, that malnutrition is an important problem.

On the basis of spot surveys and laboratory studies, the National Institute of Nutrition of Colombia claims that poor nutrition affects a large portion of the population of that country. This was evidenced by altered height, weight, and body measurements of the people as well as by decreased work capacity and the presence of clinical findings. The diet of the Colombians was shown to be low in proteins, fats, vitamins, and essential minerals, and to be high in carbohydrates.

It is well known that hookworm disease, malaria, and tuberculosis are intimately related to malnutrition in many persons who suffer from these diseases, but whether or not the relationship is causal defies affirmation except in certain individual situations. The sufferer of malaria or hookworm disease may be malnourished because of the anemia that reduces his productive and earning capacity and therefore his ability to provide for his food needs. Or the malnourished person, as a result of diminished resistance, may fall an easy victim to such diseases. Whatever may be the relationship, it is clear that the well-being of the individual is compromised by malnutrition as well as by certain specific diseases.

By 1942, a number of the Latin American countries were already interested in nutrition. Uruguay created a Department of Nutrition and Dietetics in its Ministry of Health in 1934, and about the same time a National Commission for Nutrition was formed. Two years later Mexico established a Nutrition Re-

search Institute. By 1951, there were 6 nutrition institutes and 9 divisions or departments of nutrition in one or another ministry in the 18 Latin American countries in which health and sanitation *Servicios* were in operation. This is strong evidence of a growing appreciation of the importance of nutrition, but the development can scarcely be said to be on a scale commensurate with the magnitude of the problem.

Servicio Projects

The distribution of the *Servicios*' expenditures among the major categories of their activities in the field of specific diseases and nutrition is summarized in the accompanying table.

Malaria Control

Because of the wartime objectives of the bilateral health programs, malaria control projects were among the earliest undertaken. During the last 8 months of 1942, 30 of the 36 projects in the field of specific diseases were for malaria control.

The rather large sum spent in the control of a single but very important disease was expended as follows: 51.7 percent for permanent drainage projects; 39.4 percent for temporary drainage projects and for larviciding; 5.4 percent for DDT house-spraying activities; 1.5 percent for studies and surveys. The remainder covered projects related to personnel training, treatment, screening, and the like.

Number of projects and expenditures in the field of specific diseases and nutrition, 1942 through June 30, 1951

Activity	Number of projects	Total expenditures	Percent- age of total expend- itures
Malaria.....	163	\$9, 522, 223. 67	59. 7
Tuberculosis.....	13	2, 715, 303. 46	17. 0
Other specific diseases.....	50	2, 195, 322. 29	13. 7
Communicable diseases: hospitals and departments.....	6	1, 039, 875. 73	6. 5
Nutrition.....	6	469, 478. 18	2. 9
Total.....	238	15, 942, 203. 33	99. 8

The proportionately large amount spent for permanent control measures, mostly drainage, appears to be in line with good planning. DDT was not available until late in the period.

Tuberculosis Control

The promptness with which the *Servicios* were able to evaluate the malaria situation and assist in its improvement was not paralleled in any other of the specific disease situations or in nutrition. Ready-made opportunities such as were available at the outset in the malaria field were not so apparent in the other fields, nor was there, with certain exceptions, a comparable mass of knowledge which could be drawn up and applied.

Tuberculosis, for example, is not a disease for which there is a specific treatment or a proved method of prevention. Only 13 tuberculosis projects were developed during the 10-year period. Six of these were tuberculosis hospital and sanatorium construction projects, utilizing 80 percent of the funds in this category. The remainder provided for projects in the actual diagnosis and care of patients in three dispensaries, for the operation of a tuberculosis sanatorium, and for support of three BCG campaigns.

No funds were designated for the field studies and research which are essential if the tuberculosis control program in Latin America is to be well oriented. Some support of tuberculosis research was provided in Santiago, Chile, however, through the aid given to the Quinta Normal Health Center, and in many countries aid to the tuberculosis campaigns was provided through support of various health centers and by the specialization of personnel through the Institute's fellowship program.

Other Areas

Eighteen specific diseases other than malaria and tuberculosis were considered sufficiently important to justify the expenditure of *Servicio* funds for their control. Of the total amount spent, 91.9 percent was devoted to control projects, 4.6 percent to buildings and equipment, and about 2.6 percent to immunization campaigns. Only \$18,905 was devoted to studies, although in a number of the control projects a certain amount of field investigation was in-

herent in the operations. These specific diseases included anthrax, bartonellosis, brucellosis, diphtheria, goiter, hookworm disease, Hansen's disease, meningitis, onchocerciasis, plague, poliomyelitis, schistosomiasis, smallpox, typhoid fever, typhus fever, the venereal diseases, yaws, and yellow fever.

General aid was given to improve the communicable disease services in 2 countries and to build 3 infectious disease hospitals in a third.

Support to nutrition work was supplied in 5 countries. In 4 countries, equipment and supplies were provided, and in 2, aid was given in the development of a nutrition and food control service.

Evaluation of Efforts

Although an evaluation of each of the 238 projects in the field of specific diseases and nutrition could not be made in the time available for the survey, certain conclusions regarding various groups were drawn.

Malariaology

Although only 5 of the 163 projects for malaria control were active at the end of 1951, it was possible to evaluate the work on a sampling basis. From examination of certain malaria drainage projects, it was determined that such work has withstood the test of time and has achieved the objective for which it was done.

The DDT projects were uniformly successful in controlling malaria even in such areas as the Amazon Valley. The early projects demonstrating the value of DDT were a significant contribution. The chemical was first used by a *Servicio* in Breves, Pará, Brazil, in 1944. The success attained there was followed by success in other areas, and in due course DDT spraying was adopted generally in malarious areas. Although neither the Institute nor any of the *Servicios* may be credited with discovering the value of DDT spraying, they are to be commended for having lost no time in conducting field trials and making available to others the knowledge resulting therefrom.

Since almost 60 percent of the funds used in the field of specific diseases and nutrition was employed against malaria, it is appropriate to ask if this was wise and realistic. It is to be

considered that 82.2 percent of the malaria projects were initiated during the war years and that it was the control of malaria more than of any other disease that was a determining factor in successfully obtaining strategic materials. Furthermore, malaria was recognized as a serious burden operating against the economic well-being of the people of Latin America. For these reasons, the expenditures for malaria control were justifiable and the projects are a credit to those who planned them. This opinion is reinforced by the fact that more than half of the money expended was employed in works which were permanent and therefore of lasting benefit to the countries concerned.

Concentration of Effort

The benefit derived from the work of the *Servicios* in tuberculosis and the 18 other specific diseases, as well as their aid to the development of national services and institutions charged with the control of infectious diseases, is believed to be substantial, but the results might have been more spectacular had there been more concentration of effort. The expenditures made for the control of these several diseases were but slightly over half as great as those made for the control of malaria alone.

Plans and Records

The yaws campaigns serve to illustrate another aspect of the specific disease control work which merits comment. These campaigns have been and are being waged in a few of the Latin American Republics at a total cost of \$1,010,665. They have been of undoubted benefit to the populations affected, but it cannot be said that the incidence of the disease has been lowered substantially, for the records do not indicate either what the incidence rate was at the beginning of the campaigns or what it is now.

The chief criticism of the yaws campaigns and of much of the other work in the field of specific diseases is that baselines were rarely established from which measurement of results could be made. Operations without a baseline might be justified when combating an active epidemic, as was the case in a few instances, but, for the most part, the *Servicios* were in a position to plan each project with care and to main-

tain records which would permit a fair evaluation of precisely what was accomplished. This was not done systematically.

Importance of Nutrition

Servicio directors appeared to be unanimous in their belief that malnutrition was widespread and of such intensity as to constitute a serious health hazard in many parts of Latin America, but relatively little was done to improve the situation. The *Servicios* invested only 2.9 percent of their funds in nutrition projects and developed programs in but 5 of the 18 countries. Much greater attention should be devoted to the problem of nutrition in the future than has been accorded it so far.

Infant Diarrheas

Another area which calls for greater concentration is the infant diarrheas. Advances have

been made in knowledge of their etiology and epidemiology but not enough to enable the health worker of Latin America to bring them speedily under control. It is believed that additional field studies should be undertaken and persisted in. The hope of reducing the infant mortality which results from the infant diarrheas rests in the first instance upon research.

Conclusion

The infectious diseases and malnutrition together make up the principal disease burden of the people of Latin America. These diseases are a principal factor in producing the short life span characteristic of the population. Moreover, ill health reduces manpower and retards economic progress. It is recognized, however, that these diseases are largely preventable. Intensified public health measures will assuredly conquer them.

From THE CHILD

Cerebral-Palsied Children

Believing that many cerebral-palsied children like other youngsters can be brought up in their own homes—New York City has developed four special units for educating them in the public schools. At the same time, the handicapped children receive the special medical and health services they need. These advantages are particularly important for the children's emotional growth and development. From the long-range view, the classes are helping the children attain partial independence and productivity. (See Cerebral-Palsied Children Attend Special Classes in Public Schools—Drs. Helen M. Wallace, Leona Baumgartner, and William Cooper in the August-September 1953 issue of *The Child*.)

A Manual for the Operation of Cerebral Palsy Units in New York City is available

upon request from the Bureau for Handicapped Children, New York City Department of Health, 125 Worth Street, New York 13, N. Y.

Rheumatic Fever Problems

Parents with children convalescing from rheumatic fever have been brought together to discuss common problems and fears. They meet with the staff of the pediatric cardiac clinic at the Grace-New Haven (Conn.) Community Hospital. (Jean Kiningham Igersheimer and Drs. Charles Henry Crothers and Robert B. Kugel describe this program in the August-September issue.)

The Child is issued 10 times a year by the Children's Bureau, U. S. Department of Health, Education, and Welfare. \$1.25 a year (\$1.50 foreign mailing), 15 cents a copy, from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.
